User Data:

Date:8-Apr-2015 **Time:22:14:17** **File: xpert 6mm ppc 68 gr.dat**

Cartridge / Caliber	**6 mm PPC**		**Bullet**	**.243, 68, XPERT Bullet**	
Maximum Average Pressure, allowed	58740 psi.	4050 bar (Piezo CIP)		with flatbase	
Groove Caliber	0.243 in.	6.17 mm	Bullet Weight	68.0 gr.	4.41 gm
Case Capacity, overflow	33.01 gr. H2O	2.143 cm³	Bullet Length	1.031 in.	26.2 mm
Case Length	1.505 in.	38.23 mm	Bullet Seating Depth	0.450 in.	11.43 mm
Cartridge O.A. Length	2.087 in.	53.01 mm	Barrel/Tube Length	24.0 in.	609.6 mm
Shot Start / Init Pressure	3625 psi.	249.94 bar	Cross Section Area of Bore	0.04576 in.²	0.2952 cm²
Propellant type	**Somchem S335**				
Charge Weight	26.0 gr.	1.685 gm	Load Density	236.7 gr./in.³	0.936 gm/cm³
Heat of Explosion, Potential	240.4 J/gr.	3710 J/gm	Energy Density of Charge	56912 J/in.³	3473 J/cm³
Propellant Solid Density	407.15 gr./in.³	1.61 gm/cm³	Used Ratio of Specific Heats cp/cv	1.224	
Burning Rate Factor Ba	0.624 1/s		Weighting Factor	0.5	
Burning Function Limit Z1	0.35		Prog.-/ Degressivity Factor a0	2.299	
Factor b	1.666		Bulk Density	227.6 gr./in.³	0.900 gm/cm³

Calculated and Estimated Data:

Bullet Shank Seating Depth	0.45 in.	11.43 mm	Capacity Displaced by Seated Bullet	0.0209 in.³	0.343 cm³
Useable Case Capacity	0.1099 in.³	1.8 cm³	Bullet Travel at Muzzle Exit	22.94 in.	582.8 mm
Loading Ratio("Density") / Filling	104.0 % = compressed		Charge Fraction Burnt at Shot Start	1.35 %	
Predicted Data:					
Maximum Chamber Pressure	45111 psi.	3110 bar	Bullet Travel at Pmax	1.30 in.	32.9 mm
at Muzzle Exit:					
Bullet Velocity	2965 fps.	903.6 m/s	Pressure at Muzzle	5885 psi.	406 bar
Bullet Energy	1327 ft.lbs.	1799 Joule	Bullet Barrel Time	1.103 ms	
Propellant Burnt	96.2 %		Ballistic Efficiency	28.8 %	

Check Loading Manuals for Safe Minimum Charge Weight to Avoid Hazardous Ignition Conditions like Secondary Explosion Effects !
Real maximum (peak) of pressure is reached while bullet moves within barrel.
End of combustion occurs after the bullet's base passes muzzle.